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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/584,634 | 06/26/2006 | Akira Ikeda | 1019519-000532 | 5588 |

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| EXAMINER | |
|---|---|
| HON, SOW FUN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1794 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 12/15/2009 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/584,634 | IKEDA ET AL. | |
| | Examiner | Art Unit | |
| | SOPHIE HON | 1794 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *08 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10,13,30,31,40-45 and 60-69* is/are pending in the application.

4a) Of the above claim(s) *30,31 and 40-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13,60-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/11/09,7/08/09,4/02/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

### *Withdrawn Rejections*

1. The objection to claim 10 is withdrawn due to Applicant's amendment dated 7/08/09.

2. The non-statutory obviousness-type double patenting rejection of claims 6-10 over claims 3 and 9-10 of copending application S/N 11/444,330 is withdrawn due to the amendment filed in the copending application.

3. The 35 U.S.C. 102(b) rejection of claims 1 and 6 over Jones is withdrawn due to Applicant's amendment dated 7/08/09.

4. The 35 U.S.C. 102(b) rejection of claims 1-10 and 13 over Nobuyasu in view of Jones is withdrawn due to Applicant's amendment dated 7/08/09.

### *New Rejections*

### *Claim Rejections - 35 USC § 102/103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-10, 13, 60-69 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsunaga (WO 2004/017105 A1), as evidenced by Gunesin (US 4,692,492).

Regarding claims 1-3, Matsunaga teaches an antireflection film 1 comprising: a transparent support 2; and a low-refractive index layer 5 (page 10, 2nd paragraph, Fig.

1(b)) having a lower refractive index than the transparent support 1 (page 10, 3rd paragraph), wherein the low-refractive index layer is an outermost layer of the antireflection film (page 10, 2nd paragraph, Fig. 1(b)), and the low-refractive index layer comprises a hollow silica particle (page 29, 3rd paragraph), and a silicone-based or fluorine-based compound (page 52, 2nd paragraph), wherein the silicone-based compound has a silicone group (dimethylsilyloxy, page 52, last paragraph) and/or a fluoroalkyl group (page 53, 1st paragraph), and the fluorine-based compound has a fluoroalkyl group (page 53, 2nd paragraph) where the silicone group and/or the fluoroalkyl group segregate(s) at an outer surface of the low-refractive index layer and provides the surface with slipperiness and stain-proofing (page 52, 2nd paragraph) which, being at the outermost surface of the antireflection film, lowers the surface free energy of the antireflection film, as evidenced by Gunesin.

Gunesin teaches that a silicone-based compound with low surface free energy (PDMS with a trimethyl siloxy terminal group has a surface free energy of about 21 dyne/cm, column 4, lines 54-60) will diffuse to an outer surface of a layer and segregate there (forming a thin permanent coating, column 4, lines 58-63), lowering the surface free energy of the outer surface of the layer, thus providing the outer surface of the layer with slipperiness and stain-proofing (non-stick and non-staining coating, column 4, lines 53-68).

In addition, Matsunaga teaches that the silicone-based compound comprising silicone-group and fluoroalkyl group, or the fluorine-based compound comprising fluoroalkyl group, is added in an amount of 0.1 to 5 weight % (page 52, 2nd paragraph)

which is the same amount disclosed by Applicant (page 22, 2nd last paragraph), and is commercially available as X-22-174DX or FM-0725 (page 53, 1st paragraph) which is the same as disclosed by Applicant (page 23, 1st paragraph). Thus, although Matsunaga, as evidenced by Gunesin, fails to teach that the at least one of a silicone and a fluoroalkyl group is segregated at the outer surface of the low refractive index layer such that a spectral intensity ratio Si/C or F/C in a photoelectron spectrum at the outer surface is larger by at least 5 times than that at a depth from the outer surface, the depth being equal to 80% of a thickness of the low refractive index layer, where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence evidence to the contrary.

Regarding claims 4-5, Matsunaga teaches that the low-refractive index layer comprises a binder (page 13, last paragraph), and the compound comprises a reactive (meth)acryloyl group (page 52, last paragraph, page 54, 2nd paragraph) with the binder (constituent unit for imparting crosslinking activity, page 14, 2nd paragraph).

Regarding claims 6-8, Matsunaga teaches an antireflection film 1 comprising: a transparent support 2; and a low-refractive index layer 5 (page 10, 2nd paragraph, Fig. 1(b)) having a lower refractive index than the transparent support 1 (page 10, 3rd paragraph), wherein the low-refractive index layer is an outermost layer of the

antireflection film (page 10, 2nd paragraph, Fig. 1(b)), and the low-refractive index layer comprises a hollow silica particle (page 29, 3rd paragraph), and a silicone-based or fluorine-based compound (page 52, 2nd paragraph), wherein the silicone-based compound has a silicone group (dimethylsilyloxy, page 52, last paragraph) and/or a fluoroalkyl group (page 53, 1st paragraph), and the fluorine-based compound has a fluoroalkyl group (page 53, 2nd paragraph) where the silicone group and/or the fluoroalkyl group segregate(s) at an outer surface of the low-refractive index layer and provides the surface with slipperiness and stain-proofing (page 52, 2nd paragraph) which, being at the outermost surface of the antireflection film, lowers the surface free energy of the antireflection film, as evidenced by Gunesin.

Gunesin teaches that a silicone-based compound with low surface free energy (PDMS with a trimethyl siloxy terminal group has a surface free energy of about 21 dyne/cm, column 4, lines 54-60) will diffuse to an outer surface of a layer and segregate there (forming a thin permanent coating, column 4, lines 58-63), lowering the surface free energy of the outer surface of the layer, thus providing the outer surface of the layer with slipperiness and stain-proofing (non-stick and non-staining coating, column 4, lines 53-68).

In addition, Matsunaga teaches that the silicone-based compound comprising silicone-group and fluoroalkyl group, or the fluorine-based compound comprising fluoroalkyl group, is added in an amount of 0.1 to 5 weight % (page 52, 2nd paragraph) which is the same amount disclosed by Applicant (page 22, 2nd last paragraph), and is commercially available as X-22-174DX or FM-0725 (page 53, 1st paragraph) which is

the same as disclosed by Applicant (page 23, 1st paragraph). Thus, although Matsunaga, as evidenced by Gunesin, fails to teach that the at least one of a silicone and a fluoroalkyl group is segregated at the outer surface of the low refractive index layer such that a spectral intensity ratio Si/C or F/C in a photoelectron spectrum at the outer surface is larger by at least 5 times than that at a depth from the outer surface, the depth being equal to 80% of a thickness of the low refractive index layer, where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence evidence to the contrary.

Furthermore, Matsunaga teaches that the low-refractive index layer further comprises a binder that is a fluorine-containing polymer (page 13, last paragraph), and thus comprises a fluorine. Matsunaga teaches that the binder can further comprise a silicone (silane, page 14, 2nd paragraph).

Regarding claim 9, Matsunaga teaches that the binder is a compound having a (meth)acryloyl group (page 15, 1st paragraph).

Regarding claim 10, Matsunaga teaches that the binder is a compound represented by formula (1) of Applicant, where $40 \leq x \leq 55$, which is within the range of Applicant, $40 \leq y \leq 55$, which is within the range of Applicant, $0 \leq z \leq 10$, which is within

the range of Applicant, n = m of Applicant, where 2 < m of Applicant < 10, (formula 2, page 19).

Regarding claim 13, Matsunaga teaches that the antireflection layer comprises a layer comprising at least one of a hydrolysate of a compound and a partial condensate of the compound (page 32, last paragraph), the compound being an organosilane that is represented by formula (A) of Applicant (formula 3, page 33, second paragraph, $R^{10}$, page 33, 3rd paragraph, X, page 33, last paragraph, m, top of page 34) wherein the hydrolysate and the partial condensate is produced in the presence of at least one of an acid catalyst and a metal chelate compound (page 40, last paragraph).

Regarding claims 60-62, Matsunaga teaches that the low-refractive index layer that is an outermost layer of the antireflection film, as described above, further comprises a silicone-based compound that is a polydimethylsiloxane (having a plurality of dimethylsilyloxy units, page 52, last paragraph) that segregates at an outer surface of the low-refractive index layer and provides the surface with slipperiness and stain-proofing (page 52, 2nd paragraph) which, being at the outermost surface of the antireflection film, lowers the surface free energy of the antireflection film to one that is within a range of at most 25 mN/m, as evidenced by Gunesin.

Gunesin teaches that a silicone-based compound that is a polydimethylsiloxane having a low surface free energy of about 21 mN/m (PDMS with a trimethyl siloxy terminal group, column 4, lines 54-60, PDMS is short for polydimethylsiloxane) will diffuse to an outer surface of a layer and segregate there (forming a thin permanent coating, column 4, lines 58-63), lowering the surface free energy of the outer surface of

the layer, thus providing the outer surface of the layer with slipperiness and stain-proofing (non-stick and non-staining coating, column 4, lines 53-68).

Regarding claims 63-64, Matsunaga teaches that the low-refractive index layer comprises a binder (page 13, last paragraph), and the compound comprises a reactive (meth)acryloyl group (page 52, last paragraph) with the binder (constituent unit for imparting crosslinking activity, page 14, 2nd paragraph).

Regarding claims 65-67, 69, Matsunaga teaches an antireflection film 1 comprising: a transparent support 2; and a low-refractive index layer 5 (page 10, 2nd paragraph, Fig. 1(b)) having a lower refractive index than the transparent support 1 (page 10, 3rd paragraph), wherein the low-refractive index layer is an outermost layer of the antireflection film (page 10, 2nd paragraph, Fig. 1b), and the low-refractive index layer comprises a hollow silica particle (page 29, 3rd paragraph); and a fluorine-containing polymer binder represented by formula (1) of Applicant, where $40 \leq x \leq 55$, which is within the range of Applicant, $40 \leq y \leq 55$, which is within the range of Applicant, $0 \leq z \leq 10$, which is within the range of Applicant, n = m of Applicant, where $2 < m$ of Applicant $< 10$, (formula 2, page 19).

Although Matsunaga fails to disclose that the binder is capable of lowering a surface free energy of the antireflection film, such that the surface free energy is at most 25 mN/m, where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP

2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence evidence to the contrary. In the instant case, the binder taught by Matsunaga is represented by formula (1) of Applicant, and is thus expected to be capable of lowering the surface free energy of the antireflection film to one that is within a range of at most 25 mN/m.

In the alternative, Matsunaga teaches that the low-refractive index layer that is an outermost layer of the antireflection film, as described above, further comprises a silicone-based compound that is a polydimethylsiloxane (having a plurality of dimethylsilyloxy units, page 52, last paragraph) that segregates at an outer surface of the low-refractive index layer and provides the surface with slipperiness and stain-proofing (page 52, 2nd paragraph) which, being at the outermost surface of the antireflection film, lowers the surface free energy of the antireflection film to one that is within a range of at most 25 mN/m, as evidenced by Gunesin.

Gunesin teaches that polydimethylsiloxane having a low surface free energy of about 21 mN/m (PDMS with a trimethyl siloxy terminal group, column 4, lines 54-60, PDMS is short for polydimethylsiloxane) will diffuse to an outer surface of a layer and segregate there (forming a thin permanent coating, column 4, lines 58-63), lowering the surface free energy of the outer surface of the layer, thus providing the outer surface of the layer with slipperiness and stain-proofing (non-stick and non-staining coating, column 4, lines 53-68).

Regarding claim 68, Matsunaga teaches that the binder is a compound having a (meth)acryloyl group (page 15, 1st paragraph).

***Response to Arguments***

6. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

Examiner, Art Unit 1794